Rheumatism and Gout.

THE FAIRCHILD PREPARATIONS

— OF —

THE PURE DIGESTIVE FERMENTS,

Active, Permanent and Reliable.

TRYPSIN

(FAIRCHILD)

Especially Prepared as a Solvent for Diphtheritic Membrane.

PEPTONISING TUBES.

(FAIRCHILD).

For the preparation of PEPTONIZED MILK and other predigested food for the sick.

PEPSINE IN SCALES.

(FAIRCHILD).

The most active, permanent and reliable pepsine made in the World.

ESSENCE OF PEPSINE

(FAIRCHILD).

For administration where a fluid and agreeable form of pepsine is desired, and for the preparation of Junket and Whey.

EXTRACTUM PANCREATIS.

(FAIRCHILD).

Containing all the digestive ferments of the Pancreas.

PEPTOGENIC MILK POWDER

(FAIRCHILD).

For the modification of cows' milk to the standard of Normal Mother's Milk.

PEPSINE IN POWDER.

(FAIRCHILD).

Prepared from the scales without the admixture of any other substances, to facilitate dispensing and the preparation of saccharated pepsine.

DIASTASIC ESSENCE OF PANCREAS.

(FAIRCHILD).

For the digestion of starchy foods.

FAIRCHILD BROS. & FOSTER,

82 AND 84 FULTON ST., NEW YORK.

RHEUMATISM

AND

GOUT

—BY—

F. LE ROY SATTERLEE, M.D., Ph.D.,

Professor of Chemistry, Materia Medica and Therapeutics in the New York College of Dentistry; late Professor of Chemistry and Hygiene American Veterinary College; Hon. Member Society of Arts, London, Eng.; Attending Physician St. Elizabeth Hospital, New York; Consulting Physician Midnight Mission; late Attending Physician Northeastern Dispensary, Department of Skin and Rheumatism; Fellow of N. Y. Academy of Medicine; Fellow of Academy of Sciences; Fellow of Geographical Society; Member of County Medical Society, N. Y.; Member of Medico-Legal Society, and Member of Pathological Society, N.Y.; etc.

1890.
GEORGE S. DAVIS,
DETROIT, MICH.

B

DEDICATION.

Affectionately dedicated to my wife, who by her care, sympathy, and encouragement, did so much to enable the author to overcome in himself the ailments treated of in this book.

TABLE OF CONTENTS.

PREFACE.

It was not to allay the irritation of an attack of *cacoëthes scribendi* that this brochure was attempted, neither was it the unwarrantable assumption that upon the subject matter there was anything new to offer, but rather the yielding to the wishes of medical friends and the conviction that in the labyrinth of newer theories it was possible to lose tenable hypotheses and neglect valuable therapeutic resources. Driven by the stern necessities of an obstinately developed inherited rheumatic and gouty dyscrasia, which threatened the early abandonment of his professional career, the author was compelled to carefully study these diseases. The uric-acid theory of causation and whatever may be physiologically and pathologically connected therewith, seeming feasible and sound, he was able by the persistent adoption of the therapeutic and dietetic measures indicated to completely eradicate every symptom of the trouble in himself. Conscious, however, that the too implicit acceptance of theories, whether self-evolved or based upon deductions of others, is to close the mind to the appreciation of progress, what has been written is intended only to convey, without dogmatism, the formulated opinions which have gained force after twenty-five years' experience, with a natural predilection for the treatment of rheumatism and gout.

F. Le Roy Satterlee.

8 West 18th Street.

ARGUMENT.

Since medicine has possessed a literature, the clinical history of rheumatism and gout has been made the subject-matter of text-book and special treatises *ad nauseam*. The brief consideration of causation, symptomatology, and so forth, is introtroduced into this brochure for the sake of continuity and compactness, the author waiving all claim to originality in description or research. The phenomena, which in the main characterize these diseases, are the same yesterday, to-day and forever.

In the matter of treatment, however, he feels that he may, out of a ripe experience, with justice to himself, and in the hope of possible benefit to others, state the satisfactory results which appear to have accrued by following the lines to be hereinafter detailed.

As to the possible relation which the presence of an abnormal quantity of uric acid in the system, resulting from a failure in the process of oxidation to the point of urea, bears to the theoretical bases of identity for cause and treatment in rheumatic affections, an epitome of several views may be permitted without venturing too far upon debatable ground.

It has been urged that there exists a large class of diseases which can be proved to result from errors of chemical action, caused by the introduction from without, or by the generation within the body, of sub-

stances that increase or diminish, or change the oxidation which is necessary to its special working.

It is essential to the precise constitution of healthy blood, that there shall exist an accurate balance in the nutritive processes maintaining the several tissues, so that none of the materials appropriated to any part may remain in excess in the blood. Thus each part is in the relation of an excretory organ to all the rest. For example, if the muscles do not take material for their nutrition, there may be an excess of fibrin and their other constituents in the blood; if the bones do not do so, the salts of lime may be in excess, and so on.

Among the causes likely to disturb this theoretical chemical equilibrium, are the presence in excess, of some given constituent of the food, and the existence of any condition calculated to effect retardation in the normal change of tissue, preventing the appropriation of new material for the construction of healthy blood. Experience unquestionably shows that gout, and allied affections, are met with in individuals addicted to an over-indulgence in nitrogenous diet and generous wines, and who are given to sedentary habits. These conditions are intimately associated with the presence of uric and oxalic acids in the blood, and their manifestations. The amount of fibrin in healthy blood is less than three per cent. In rheumatism this constituent may be abnormally increased to ten per cent. Excessive indulgence in

nitrogenous diet, causing excess of fibrin in the blood, and conditions which retard the transformation of effete tissue, is likely, therefore, to render the normal supply of atmospheric air insufficient for its required purposes in the economy. A sedentary life, independent of the foregoing, also retards metamorphosis. Under these circumstances, it follows that if urea, carbonic acid, and ammonia, represent the full oxidation of the proteids in the body, anything short of this must result in the production of intermediate compounds. Uric acid, for example, which is formed in all warm-blooded animals, must be for the most part further oxidized or, owing to its insolubility, it will be deposited or combined with alkaline bases producing calculous diseases.

It is stated that when uric acid is subjected to the action of oxygen, it is first resolved into alloxan and urea; a new supply of oxygen acting on the alloxan causes it to resolve itself into oxalic acid and urea. The various excretions, as we know, are simply removed by the emunctories; and these excretions, it seems, must be in some required chemical condition, or they are imperfectly removed and otherwise remain as abnormal disturbants. The varied phases of interference in the vital economies produced by these abnormal conditions, we can only perceive by observations of results and existing states; the molecular methods that determine the specific exhibitions of disease are as yet beyond our ken. What we do per-

ceive is, that a certain state of oxidation is a prime necessity for elimination. Urea represents the oxidation, more or less complete, of effete material, or of superfluous protein matter in the circulation. If this oxidation of the proteids is not sufficiently complete, intermediate compounds are formed, and these constitute the *materies morbi* of certain diseases, such as rheumatism, etc. While uric acid may be a normal constituent of the urine, it should exist in but small quantity; hence the greater part of it is, in the system raised, so to speak, by oxidation to urea. The kidneys do not, then, form urea, but merely remove it from the blood where it has been created by chemical changes.

Urea, carbonic acid, water, ammonia, etc., are the results of the ultimate oxidation of effete tissue, not by direct oxidation, but after a series of chemical evolutions. In gout and rhumatism, in which there is an excess of fibrin and uric acid in the blood, and excess of uric acid in the urine, and on the part of the patient, sedentary and indulgent habits, we find affections of the white tissues, sheaths of muscles, aponeuroses, bursæ, capsular ligaments, pericardium and endocardium, and deposition of urate of soda in the joints, and we look for a deficient oxidation of effete tissue as the immediate cause of these affections. This theory is well corroborated by the opposite conditions which occur in the pyrexiæ, in which class of diseases there is super-oxidation of tissue, as repre-

sented in excessive execretion of nitrogenous compounds from the body, calling for such medicinal agents as counteract oxidation.

In recapitulation, it may be assumed for the sake of argument that certain habits of body tend to the undue accumulation of proteids in the blood; that these are then absolutely in excess, relatively to the wants of the system, and to the amount of oxygen consumed; that urea, carbonic acid, and ammonia represent the full oxidation of proteids, and when this process is imperfect, the formation of intermediate products must result. The primary morbific cause of gout, rheumatism, and allied affections, is the result of the imperfect oxidation of effete tissue. Treatment based upon this assumption is always the most successful. In gout and rheumatism, then, it is inferred theoretically, on the best possible grounds, and practically on the evidences of our senses, that there is an excess of uric acid circulating in the blood. The acceptance of this theory is quite compatible with the admission of the possible presence of any specific micro-organism developing in suitably vitiated tissues or blood, and conducing to, or inducing, certain of the pathological phenomena of acute rheumatism.

Theoretically, then, the problem of treatment and allied affections is reduced to a simple equation. Decrease the amount of nitrogenous food taken into the body, by restricting the diet, and give such remedies as will promote oxidation, so that the excess of nitroge-

nous material may be oxidized up to the point where it is easily eliminated from the body.

From a chemical point of view, the alkaline salts constitute the most important principles promoting oxidation; even vegetable acids are converted in the system into carbonates for this purpose. The alkalies do not neutralize the uric acid, as was at one time supposed, but merely prevent its accumulation to the extent which constitutes a *materies morbi*, by promoting its oxidation to the point of urea formation.

CHAPTER I.

ACUTE ARTICULAR RHEUMATISM.

DEFINITION.

A constitutional febrile disease, the immediate local manifestations of which are painful inflammatory changes at the site of the articulations, several or many of which may be simultaneously involved.

CAUSATION.

Innumerable theories have been from time to time advanced, and one by one abandoned, as to the real causes active in producing an attack of acute articular rheumatism. The tendency of present medical thought is, to ascribe all pronounced morbid systemic disruptions to the presence of some specific organic pathogenetic poison, and acute rheumatism is receiving its quota of scientific investigation in this respect.

Any physician, therefore, posing as abreast of current thought, must stand prepared to give credence to well authenticated proof that the germ of rheumatism has been isolated.

Pending such demonstration, that which is known as the uric acid theory of causation is perhaps the most tenable and unassailable; at any rate, it is a fact that treatment, though based even vaguely upon this *quasi*-scientific hypothesis, has proved so far the

most universally successful. It is probable, however, that many of the ingenious surmises hitherto assiduously promulgated, have contained elements of truth essential as factors to the perfect solution of the problem as to the definite ætiology of this disease.

Accepting, then, the remote causation of acute rheumatism as admitting of no present demonstration, we must fain be content with the consideratiou of the more immediate influences which appear to result in its exhibition.

The attempt to locate the disease as especially prevalent in certain climates, or under certain atmospheric conditions, does not seem to have been any too successful, authors of note disagreeing upon main issues. Perhaps the fact as to this point is well covered by the statement that it is prevalent throughout the temperate zones, less so in the tropics, while in the polar regions its occurrence is rare.

Perhaps there is no malady in which individual predisposition, inherited or acquired, but especially the latter, plays such an important rôle as in acute rheumatism. Apart from the congenital dyscrasia, there are numberless influences to which people are exposed, tending to such vitiation of the physiological constituents of the body as renders imminent the liability to an acute manifestation of this disease. Formulæ abound, all of which have in turn served to demonstrate, to the satisfaction at least of the medical mathematicians by whom they were

evolved, the precise molecular metabolism incident to acute articular rheumatism. These recondite propositions are periodically set aside, often in favor of still more complex theories.

It is, however, manifest that irregularities of living, errors of diet, and protracted exposure to impure atmospheric influences, especially when associated with humidity, seem to prepare in the system morbific combinations ready for explosion in the form of an inflammatory attack, upon the exhibition of an adequate exciting influence.

This predisposition once established, the potent exciting cause which usually determines the first clinical phenomenon is cold. This influence may act directly or insidiously. Exposure to such sudden lowering of the temperature as produces a chilling of the superficies of the body, especially when perspiring, fatigue, wearing damp clothes, or during or after severe bodily exertion, is a direct cause, while draughts impinging upon any portion of the body, and steadily or rapidly lowering the temperature over an area of more or less of its surface, may act insidiously in producing the attack. While none of these factors may be grossly definable, there is little doubt that they, or some intangible modification of them, exist prior to an acute seizure.

Whether the resultant phenomena called rheumatism, could accrue from these exciting causes without due preparation of the system by the morbific

processes already indicated, is a moot point. While admitting the potency of such exciting causes for the production of many other of the acute ailments, the author ventures to assume that only in the presence of certain properly arranged morbific elements, constituting the dyscrasia or predisposition, would the particular phenomena of acute articular rheumatism be determined. This position seems to leave ample margin for the acceptance of the theory of specific microbic investment, by the blood or tissues, preceding or co-incident with the exciting cause, should further investigation demonstrate the disease as partly or wholly of infectious origin.

The writer, in a paper read before the New York Dermatological Society, some seventeen years ago, committed himself to the view that his observation had indicated the non-existence, in the same subject, of rheumatism and consumption. A contributor to current medical literature has recently definitely stated the belief that there is an antagonistic inherited cachexia precluding the simultaneous or consecutive existence in the same individual of phthisis and rheumatism.

While neither age nor sex can be said to enjoy absolute immunity from the malady, it appears to favor by selection the periods of juvenility, adolescence, and middle age. In very young children it is infrequent, and an initial acute attack is rare after forty-five, or fifty.

To sum up: Heredity, imperfect hygienic influences, especially if associated with humidity, improper alimentation, faulty assimilation, sub-oxidation of the nitrogenous constituents of the body, surcharging the economy with resultant uric acid and other products of the arrested oxidation, plus the development of some specific germ yet to be demonstrated, may, with exposure to cold as an accentuated or perhaps an intangible exciting cause, produce the inflammatory condition which we know as acute articular rheumatism.

SYMPTOMATOLOGY.

Until the sensations of the patient are sufficiently defined to refer to pain as localized in the joints, the symptoms of an impending attack of acute rheumatism could only be covered by a list of possibilities. the systemic disturbances, constituting predisposition, which render the attack imminent, may well account for any pre-existing malaise. As this disturbance varies in degree, so may the indications be pronounced or almost absent. Assuming the case to be a first attack, uncomplicated, yet typical in point of rheumatic indication, there may exist on the part of the patient a premonition that something is wrong. Some muscular soreness, weariness in the limbs, neuralgic pains, stiffness about one or more of the joints, associated with impairment of the appetite and constipation, may each and all be experienced. Laryngitis and amygdalitis are not infrequently present, and many laryngologists

to-day recognize the possibility of these affections being sometimes of rheumatic origin, and assert that the symptoms may then be rapidly and effectively controlled by anti-rheumatic treatment. Distinct rigor is probably rare, but chilly sensations may be present, and the temperature if taken at this time, may be found at 101° F. Pain, of characteristic and ever increasing severity, is gradually concentrated about certain of the articulations. The slightest movement of the body, contact of the bedclothing, the motion imparted to the bed by attendants walking in the room, and the performances of the necessary nursing offices, are sources of exquisite suffering. Nothing short of absolute immobility gives any approach to relief. The temperature will now be found to have risen to 103° or 104° F. Examination of the affected areas may reveal nothing, and it is a point of clinical interest that the intensity of the suffering can be so disproportionate to the external evidences of the inflammatory processes.

Again, examination of the affected joints may reveal all the appearances of acute synovitis, tenderness, swelling, fluctuation from effusion, and œdema, a circumscribed or diffused inflammatory blush being well defined.

The larger articulations are more generally attacked, notably those of the lower extremities, but the fingers are often implicated, and there is no exemption in favor of any articular site.

It is characteristic of the malady, that after invading a series of joints, the inflammatory processes may cease in them somewhat suddenly, migrating to other articulations, and leaving those originally affected comparatively comfortable. When this amelioration does not obtain, the condition of the patient becomes, of course, correspondingly pitiable. Such metastatic excursions may be repeated *de novo*.

Hyperidrosis is constant to acute rheumatism, and the intense acidity of the sweat secreted probably induces those skin affections which are by no means uncommon during the attack. There may occur eczemas, urticaria, erythema nodosum, papular efflorescences, sudamina, and herpetic eruptions.

The departure from the normal standard in the character and quality of the urine secreted and excreted during this disease is quite marked. The quantity voided in twenty-four hours is far below that of health. The color is deep red, the reaction is intensely acid, the specific gravity high, and on cooling there is subsidence in excess of such solid constituents as free uric acid and the urate of soda.

The diminution in the quantity of the urine voided may be fairly credited to the drain upon the watery constituents of the tissues by the profuse perspiration, and the evaporation under high temperature.

The febrile phenomena vary greatly in this disease. The thermometric curve may be tersely expressed as proportionate to the area of the articular

sites involved. Remissions, or even intermissions, of temperature are common enough, and evening exacerbations are the rule. The pulse corresponds in frequency and character to the temperature, and to the extent with which complications arise involving the heart and great vessels, and the nervous centres.

DIAGNOSIS.

A disease presenting such clinical manifestations hardly admits of much argument on points of refinement in differential diagnosis. Still there are diseases with which are associated pain and swelling of the joints, with or without febrile disturbances, which, it is well to bear in mind, and to satisfactorily exclude. Among these are traumatic arthritis, osteomyelitis, acute gout, acute rheumatoid arthritis, pyæmia, gonorrhœal rheumatism, and hysterical joint. Traumatic arthritis is usually determined by a history or evidence of injury, and is confined to one articulation. Gonorrhœal or urethral rheumatism generally attacks one joint only, and that in the lower extremities. Acute gout manifests itself in the ball of the great toe, or, if disseminated, is not associated with such marked constitutional disturbances. Rheumatoid arthritis is not migratory, and is unattended by general symptoms. Hysterical joint is said to depend for its clinical features upon mental concentration on the part of the patient, for when the attention is di-

verted the site of the alleged lesion can be roughly handled with impunity.

With due regard to the history of any given case and careful observation of its clinical aspects, there should be found no difficulty in arriving at a correct diagnosis in a case of acute rheumatism. Bearing in mind, however, the grave cardiac complications which may accompany or even antedate the condition of maximum severity, it is important, when the diagnosis is once made, that special regard should be paid to their existence or possible appearance.

PATHOLOGY.

Though acute rheumatism is one of the most common diseases, it is so seldom fatal that opportunities for extended post-mortem investigation do not occur; hence the very meagre information available on this point in pathological literature. It is, however, admitted that the changes within the joints are usually slight, and bear little relation to the clinical symptoms. The diffused or circumscribed blush which might have been present at the time of death, disappears post-mortem. If the examination be made soon enough there will be found a more or less vivid hyperæmic condition of the synovial membranes of the affected joints, the membranes being lustreless and granular—and this may be all. In special cases the joint may be distended with fluid, while all the existing exudations will be turbid from

the presence of fibrin, and of a pinkish hue from slight extravasation of blood. The joint surfaces are sometimes pink from congestion of the vessels; flakes of lymph float free or coat the synovial surfaces of the joints. The inflammatory processes are at times seen to extend to the sheaths of the tendons, fascia, and muscular structures; there is marked abnormal proliferation of cell elements, and some indications of fatty degeneration; the ends of the bones are more than usually vascular.

Such a list of possibilities hardly bears out the statement of meagreness in pathology, but in fact the appearances are but rarely so defined.

COURSE AND TERMINATION.

A typically severe case of uncomplicated acute rheumatism tends, if it is the first attack, to subsidence of all the painful symptoms about the middle or end of the third week. When recovery is retarded it is generally so protracted by co-existing complications.

Cases which run a sub-febrile course are generally of mild character and of short duration. The disease may terminate in perfect recovery; recovery with more or less impairment of function, at the site of the affected joints; recovery with a permanent cardiac lesion; or in the event of the possible, though rare supervention of cerebral symptoms, with pronounced and sudden exacerbation of temperature, death may ensue.

Perhaps the sharper and more well defined the attack, if uncomplicated and fairly treated, the less the liability to protracted sequelæ referred to the joints; the milder sub-acute and often less cared for cases appearing more frequently to drift into a state of chronicity.

Undoubtedly, the severity of the course, and the duration of the attack, can be influenced and mitigated by scientifically directed treatment, which tends also to minimize the probability of chronic functional impairment of the joints, and to ward off the more grave cardiac complications.

COMPLICATIONS.

For the purpose of concise description, a case of uncomplicated rheumatism has been assumed. The fact must not been ignored, however, that the probable, too often unavoidable, and always irremediable, cardiac lesions, which may antedate or coëxist with the acute symptoms, are to be regarded as possible components of the general rheumatic condition. These lesions are of so serious a character as to far exceed in significance all the other manifestations of the disease. Pericarditis and endocarditis, with which more or less myocarditis is associated by contiguity, can and often do arise. Opinions are so at variance as to the condition and circumstances in which these heart complications are most prone to occur, that individual statement has little weight.

It is, however, received as an axiom, that they are the more likely to arise, the younger the subject. It is also stated that the danger of involvement of the endocardium bears direct proportion to the severity of the seizure, and to the size, number, and position of the joints attacked. It has been lately urged, and with much reason in the argument, that many cases of developed heart disease in the adult might be traced for their origin to an unappreciated rheumatic condition in early life. The point is well made, that the nature of the rheumatism which attacks children is often obscure, and that in view of the well known difference in the degree of severity in this disease, many children experiencing the so-called " growing pains " are suffering from rheumatism with possible associated endocarditis. The delicate softened heart-muscles, it is claimed, might readily at such a time undergo dilatation, with permanent damage to the valves. In the event of the child's surroundings being of such a character that nutrition remained adequate, the necessary compensatory hypertrophy would ensue, enabling the heart to do its work, but that when waning vitality supervened, the existence of valvular lesions would become evident.

It is not within the scope of this writing to discuss the clinical and physical aspects of the heart lesions. It should, however, be borne in mind, that a variety of murmurs may be definable over the præcordial area, many of which may be the result of tem-

porary functional disturbances. In pericarditis, the opposed inflammatory products upon the interior of the sac will give rise, during the movements of the heart, to a characteristic friction murmur, prior to the stage of effusion. If the patient is thin, palpation of the region may elicit a friction fremitus. The existence of any considerable effusion in the sac will of course give rise to proportionate displacement of the heart and lungs, with corresponding dyspnœa and circulatory disturbances, and increased area of cardiac dullness.

The clinical points in endocarditis are not well defined, but too much significance cannot be placed upon the presence of a systolic mitral murmur during a first attack of acute rheumatism in a person known to have been previously free from any heart trouble.

Among the rarer complications of the acute stage, may be cerebral or hyperpyretic rheumatism, meningitis, pyæmia, pleurisy, pneumonia, and bronchitis. Chorea, and follicular tonsilitis, are said to have acute rheumatism as a most potent factor in their causation.

CHAPTER II.

TREATMENT OF ACUTE RHEUMATISM.

The subject of treatment in this disease has been, and still remains *vexata quæstio*. The theories from time to time coming to the fore as to the morbific processes constituting its pathology, have each had thereto appended suggestions for a course of treatment to be specific, or of more or less pronounced infallibility in mitigation or cure. Treatment by *placebo*, such as colored water, mint water, etc., during an acute attack, has demonstrated the expectant method as deleterious, the systemic disturbances and dangerous complications demanding medical interference. Many hitherto vaunted specific remedies, no matter how well chosen or assiduously administered, are powerless to do more than temporarily alleviate aggravated symptoms; they do not shorten the disease and their use is frequently pernicious, and too often fraught with grave dangers. In this class of remedial measures and agents are phlebotomy, once practiced heroically in rheumatism, and the use of the antimonial and mercurial preparations. Then follow a long list of therapeutic agents, among the most popular of which have been the nitrates and bicarbonates of soda or potassium, quinine, colchicum, iron, iodide of potassium, opium, aconite, veratrum, lemon juice, oil of wintergreen, digitalis, the mineral acids,

trimethylamine or its hydrochlorate, salol, salicylic acid, the salicylates and benzoates.

The topical remedies have included every conceivable device from a cabbage leaf to blisters and the subcutaneous injection of thirteen drops of a one per cent. solution of carbolic acid at the site of the affected joints.

As in the consideration of the symptomatology of this disease the occurrence of a typical uncomplicated case, coming under the physician's notice in its initial stage, was assumed as a basis for general description, so in dealing with the question of treatment it is convenient to continue upon a similar basis. It must be borne in mind, however, that the phases of the disease in degrees of severity, and the social and hygenic *entourage* of the patient, are factors powerful for good or evil under precisely similar lines of treatment.

The writer is in the habit of dividing and subdividing the heads of a routine treatment, subject to modifications which may be indicated during the progress of the case, pretty much as follows:

1. **Medicinal.**
   - **Constitutional.**
     - **Cholagogues.**
     - **Alkalies.**
     - **Antipyretics.**
     - **Analgesics.**
     - **Mineral waters.**
     - **Tonics.**
   - **Local.**
     - **Topical applications.**
     - **Baths.**
     - **Massage.**

2. Dietetic. { Liquids. / Solids.

3 The treatment of special symptoms and complications.

The dosage to be suggested is for adult patients, and must be graded for youth according to the accepted methods.

CHOLAGOGUES.

It is believed by many authorities, and is an opinion in which the writer concurs, that the presence during an acute rheumatic seizure, of uric acid in excess, is due in a measure to the failure on the part of the liver to supply bile in sufficient quantity to complete, with the pancreatic fluid, the process of saponification of the various food elements, leaving them merely emulsified. The absorption of the chemical products of such emulsification through the portal system, deranges the glycogenic and cognate functions of the liver, leading to the formation in excess of uric acid, and to the arrest of subsequent processes by which it should be converted or eliminated. Physiologically, bile should be of alkaline reaction; but, in rheumatism, or under the influence of an excessive animal diet, it is in a state of more or less intense acidity, which tends to the precipitation of cholesterine and the production of calculi so often associated with the rheumatic condition. As cholagogues are decidedly indicated in the treatment of biliary lithiasis, so we must include them in the treat-

ment of all forms of rheumatism, exhibiting such drugs as by their known or assumed selective action in stimulating the functions of the liver, are the most likely to relieve the biliary stasis referred to. For this purpose, podophyllin will be found of undoubted utility. It may be given in doses of a quarter of a grain, once, twice or thrice in the twenty-four hours, as may be desirable. Euonymin is also a valuable cholagogue, and may be administered in doses of two or three grains at night, with three grains of Castile soap. Perhaps the more elegant and useful combination would be in tablets, each to contain:

℞ Euonymin, ¼ grain
Podophyllin, ⅛ grain.
Aloin, ⅛ grain.
Sig.—One tablet morning and night as required.

ALKALIES.

Having arranged for the foregoing part of the treatment, as of preliminary importance, attention must be given at once to the question of the essential means by which it is hoped the course of the disease may be mitigated and curtailed, and the chances of cardiac involvement minimized. If such a desirable result is to be effected by medicinal methods, it will be done by the prompt and judicious, but complete and persistent, saturation of the system by some simple and bland alkali, the continued presence of which will so nullify the pernicious effects of the abnormally secreted uric acid, as to render it nugatory until the

complete explosion of the forces which determine its excess, shall have taken place. The sodium alkalies are the best, and of these sodium bi-carbonate is to be preferred. It should be given in one-drachm doses every two hours, and its use persisted in until the saliva, which is acid in acute rheumatism, and the sweat and urine are found to give no acid reaction to blue litmus paper, with which, by the way, every physician should be provided when attending a case of this kind.

Sodium phosphate may also be given if preferred, in one drachm doses, dissolved in about two ounces of water. These sodium and potassium salts may be administered conveniently in Vichy water, or in an effervescing drink with a vegetable acid.

℞ Potassii bicarbonatis, ʒ ii, ℈ ii.
Aquæ distillata, ℥ viii.

M. Sig. One fluidounce of this solution to half an ounce of fresh lemon juice. To be taken while effervescing.

The writer has found the following combination of alkalies effective, and to be well borne by the stomach:

℞ Lithii benzoatis, ʒ ss.
Sodii bromidi,
Potassii carbonatis (pura), ää ʒ ij.
Potassii acetatis, ℥ iss.
Sodii phosphatis, ℥ ss.
Syr. zingiberis,
Aq. menth. pip., ää ad ℥ vj.

M. et sig.

Two teaspoonfuls to a tablespoonful, in a half a glass of water, every four or six hours, after food.

The thorough alkalinization of the system being demonstrated to the satisfaction of the physician, the dosage must be so graded, in respect to time and quantity, as to secure the permanence of the condition without uncalled-for crowding of the remedies, a return being promptly made to such quantities as will maintain saturation, in the event of the litmus reaction test denoting that the acidity is regaining ground. This should be done for a week or ten days in a typically severe case, without waiting for painful exacerbations on the part of the patient as an indication for resumption of the alkaline remedies.

The writer does not approve of, or recommend the employment of salicylic acid, or the salicylates, in the treatment of cases of acute rheumatism. The effect of these drugs, though at times brilliant in producing subsidence of pain, is very uncertain and always transient, relapses being the rule; and the continued administration of these remedies is, moreover, productive of a series of deleterious symptoms, such as gastric and cerebral disturbances, cardiac depression, obliteration of the first sound of the heart, anæmia, and other toxic phenomena.

In the most recently published views upon the subject of the salicylic compounds as applicable to acute rheumatism it is urged that while they are of special utility in relieving pain, their use does not lessen the tendency to cardiac complications or hyperpyrexia, and that they are powerless to cure these

when they do arise. In addition to such negative properties it has been observed that salicylism may induce certain hæmorrhagic conditions, such as epistaxis, bleeding from the gums, hæmaturia, and retinal hæorrhage.

This is rather a bad record for so vaunted a specific.

ANTIPYRETICS.

Exacerbations of temperature must be met as, in the opinion of the physician, the necessity for interference may arise, and in this particular it is well to exercise judgment and to carefully watch the patient. It is not possible to define dogmatically the safety limit in the matter of the pyrexia, but it is necessary to urge caution in the administration of the several potent modern remedies which seem under certain conditions to control thermogenesis. Judicious use of these antipyretics in a case of acute rheumatism, where the temperature shows persistent tendency to run up to 103° or 104° F., would probably consist in the administration of antipyrin, antifebrin, or phenacetin in such doses, and at such intervals, as to maintain an equable temperature of 101° F. By such careful grading a bearable condition is secured to the patient, while general depression is avoided, and the heart loses none of its essentially demanded power to keep up the active circulation necessary to the restoration of a physiological equilibrium. Antipyrin may be given with safety in ten grain doses every

three or six hours, antifebrin in five grain doses every five or six hours, and phenacetin in ten grain doses every six hours. To further guard against the action of these drugs as depressants, it is an excellent rule to combine with each dose half a grain of powdered digitalis.

Quinine, which has been so indefatigably given in acute rheumatism, as well as in almost every other ailment that flesh is heir to, while it has its place, is worse than useless in the acute stage of this disease.

ANALGESICS.

Antipyrin, antifebrin, and phenacetin, possess marked analgesic properties, and in the majority of cases will, with the alkalinity of the system, be all that is required to make the condition bearable. When the pain is very intense, especially at the period of maximum severity in the disease, a hypodermic injection of morphia may be given, but it must be put off as long as possible, and the frequent repetition of this useful but insidious drug should be avoided for obvious reasons. If an interval of natural and painless sleep is urgently indicated, the following will be found effective:

℞ Morphiæ sulphatis..... gr. ¼.
Potassii bromidii..... ..... gr. xxx
Chloral hydratis..... ..... gr. xx.
Syrupi aurantii cort..... ʒ ii.
Aquæ pura..... q. s. ad. ℥ i.
M. et sig. Take at one dose, say at ten o'clock at night.

MINERAL WATERS.

The mineral waters which may be esteemed as of possible medicinal benefit in acute rheumatism are, chiefly, Vichy and Rubinat Llarach. The former may be used freely throughout the entire treatment, and is a serviceable vehicle for the administration of the alkaline remedies. The Rubinat Llarach is richer in sodium sulphate than other waters of this type, and is valuable for its action on the liver, and may be prescribed with advantage in any form of rheumatism. A wineglassful is about the dose, to be given early each morning, followed shortly afterward by a cup of hot coffee or tea.

TONICS.

When the inflammatory symptoms have well subsided, and the emunctories are apparently acting normally, it will be well to administer a course of routine treatment, the details of which hardly demand notice here. Attention should, however, be directed to the heart, with a view to the restoration of its tonicity. Whether this organ has escaped permanent damage or not, it will be well to assume its need of special medication. Digitalis, strychnine, arsenic, iron, quinine, in any of their innumerable combinations, may be utilized now. Probably the freshly prepared infusions or decoctions of cinchona bark, combined with a mineral acid, will be found really more effectual than quinine in restoring appetite during convales-

cence. Lactopeptine may be given if there remains any gastric irritability. The following mixtures are suggested as reliable tonics:

℞ Tinctura ferri chloridi..... ʒ iv.
Tinctura nucis vomicæ, } .....ää ʒ ij.
Acidi phosphorici dil. }
Syrupi aurantii cort..... ℥ j.
Elix. Calisayæ..... ..... q. s. ad ℥ ij.

M., et sig.: A teaspoonful in wineglass of water three times a day, half an hour before meals.

Or,

℞ Cinchona flav. cort..... ..... ʒ iij.
Aquæ bulliens..... ℥ v.
Make decoction, and add:
Acidi muriatici ..... ♏ xx.
Syrupi aurantii cort ..... ℥ j.

M., et sig.: A tablespoonful in a little water three times a day.

As a heart tonic, the following may be used:

℞ Spir. Ammonii aromatici..... ℥ iij.
Ammonii carbonatis..... ʒ j,
Tr. Cardamomii..... ℥ j.
Tr. Nucis vomicæ..... ..... ʒ iij.

M. S.: A teaspoonful in a wineglass of water three times a day

DIETETICS.

During the entire course of a case of acute rheumatism, the diet, both solid and fluid, should be simple. Generally speaking, there will be little in-

clination on the part of the patient for solid food, but such as may be given should be prepared with special care to minimizing nitrogenous elements. Oxidation of proteids, the further oxidation and elimination of uric acid, should stand out clearly as the object of all dietetic arrangements in rheumatic affections. Great thirst is usually complained of, and large draughts of water may be allowed, cold, but not iced. Advantage is taken of the oxidizing properties of water by thus permitting its consumption in large quantities, the hydrogen tending to the formation of ammonia, the oxygen to that of urea. The elimination of uric acid is also furthered by the imbibition of water in excess, the skin being made to strain off much of the acid in the perspiration superinduced by the water. Lemon juice, which has been advocated as a specific remedy for the disease, may be allowed as freely as it is usually urgently demanded by the patient. Lemonade, or drinks compounded from citric acid, without much sugar being added, may be given as often as asked for. The vegetable acids, being converted into carbonates, contribute to the desired oxidation. Milk, previously boiled, may be given, on cooling, with lime water or Vichy water. If the diet is restricted to this simple but nutritious and agreeable combination, until the major manifestations subside, perhaps all the requirements indicated will be met. Chicken or clam broths, or vegetable soups with a little beef flavoring, need not be interdicted. If meat broths are given,

they should not be used until they have been allowed to cool, for the purpose of removing the fat from them.

When convalesence is fully established and tonic treatment is instituted, the return to solid food may be allowed. It should consist at first of white meat and vegetables. Of the latter, asparagus and stewed celery are to be recommended. Small quantities of fresh fruit may be permitted if desired. Alcohol, in any of its forms, should not be allowed, and there should be careful avoidance of sweetened drinks and saccharine foods.

TOPICAL APPLICATIONS.

Of these the name is legion, aud the employment for the most part valueless. The physician attending a case of acute rheumatism will, however, do well to make some provision for such application to the affected joints as shall, as far so possible, sooth the local suffering by obtunding the cutaneous sensibility, and protect the parts from irritating contact with air or clothing. This will at least satisfy the demands, which both patient and friends will assuredly make for some form of topical treatment. Probably the most efficacious combination is a lotion as follows:

℞ Tr. aconiti radicis .....
Tr. arnica.....āā ʒ ss.
Chloroformi..... ʒ j.
Tr. saponis camphorata.... ..... ʒ ij.
M. Sig.—For external use. Apply as directed.

Surgeons' lint saturated with this, may be applied over the inflammed site and covered in by oiled silk; or the lotion may be applied directly to the skin surface, and the joint or limb swathed in cotton batting. Spongiopilin is a specially prepared, impermeable fabric, of great utility as a vehicle for the various lotions or liniments which may suggest themselves. This material steeped in hot, strongly alkaline, water, such as a saturated solution of sodium bicarbonate, and its approximating surface freely sprinkled with tincture of opium, when applied is always gratefully acknowledged as of soothing effect.

Blistering the affected sites has been much advocated. The method is useful in selected cases, for example, when the inflammatory process determines to one joint, as it sometimes does, with great effusion, threatening the integrity of the articulation, blistering with cantharidal collodion over a large portion of the swollen area will be found efficacious.

BATHS.

These are not to be recommended during the acute stage. Indeed the condition of most patients would make their employment impracticable without absolute cruelty. So soon, however, as the local symptoms have subsided sufficiently to permit of it, the body should be sponged at intervals with warm water containing alcohol, in some form. When practicable alkaline and sulphur baths will materially aid in restoring suppleness to the stiffened joints.

MASSAGE.

What has been said of baths holds good is respect to massage. It will be found valuable after the subsidence of all inflammatory symptoms. Want of caution in this matter may result in the production of a very ugly traumatic arthritis.

COMPLICATIONS.

The only complication likely to arise, tending immediately to a fatal issue, in a case of acute rhematism is, that of hyperpyrexia with its concomitant cerebral manifestations. Such a condition must be most promptly met with one remedy. Arrangements should be instantly made for placing the patient in a bath. The water in which the patient is at first immersed should be at 90° to 100° F. Cold water or ice must then be added until the temperature of the water is reduced at least to 60° F. If the condition will allow of it, the patient may be kept in the bath for an hour or more, careful observation being made of the pulse, respiration, and temperature. When the thermometer indicates the latter has fallen to a reasonable point, the patient may be removed from the bath, to which recourse must again be had upon the recurrence of the hyperpyrexia. While the patient is immersed, much of the possible depressive effect may be averted by friction of the entire body by the hand of the attendants, and the administration of aromatic spirits of ammonia, or suitable stimulants.

Of course, it is very easy to lay down dogmatically a statement that the patient is to be immediately placed in a bath, but it is very often impossible to get the bath tub. In such a case other action must be taken. The patient should be placed stripped upon a blanket, the bed being first protected by an India rubber gossamer, or some such domestic contrivance. A sheet wrung out in warm water should be wrapped around the entire body, and the sheet cooled off by water of gradually reduced temperature. The body of the patient must then be gently dried and wrapped in a clean sheet, the underlying wet things being first removed. This process must be repeated at such frequent intervals as will secure a temperature within the safety limit, until the tendency to hyperpyrexia is controlled. The complications arising about the præcordial region are to be treated on general principles as the various symptoms arise.

CHAPTER III.

CHRONIC ARTICULAR RHEUMATISM.

DEFINITION.

A sub-acute disease, chronically persistent, remittent or intermittent in character, directly, or remotely supervening upon acute rheumatism, and manifesting itself by pain and certain structural disturbances at the site of one or more of the articulations.

CAUSATION.

Without disregard of, or disrespect to, the time-honored assertion of possible spontaneity in the origin of the disease, it will be perhaps more convenient to consider chronic articular rheumatism as the immediate or remote result of some sharply accentuated, or perhaps hardly definable, or even unremembered, attack of acute inflammatory rheumatism. To accept the oft reiterated opinion that this affection of the joints is at times of independent origin is, perhaps, yielding to empiricism rather than reason. It would seem that either the term chronic rheumatism is a misnomer, or the condition should be admitted, without exception, as dating its causation from an acute rheumatic seizure, however mild or unappreciated that may have been. While the term chronic may signify protracted duration, its general medical

use expresses the sub-acute continuation of a past acute condition, and it would seem equally consistent to speak of a chronic pneumonia, pleurisy, or gonorrhœa, as likely to obtain spontaneously and without reference to some initial acute stage. Whether there remains in the system some effete, and therefore indifferently active, morbific principle, sufficiently typical of the initial poison to continue its selective action on those joints which have become a *locus minoris resistentiæ*, or whether the disturbance to the structural components of the articulations affected at the time of the acute process was of such a character as to render ineffectual reparative efforts on the part of an impaired constitution, are propositions which may each contain a modicum of fact, but both of which are unprovable except upon hypothetical bases.

If there exists on the part of a patient hereditary rheumatic dyscrasia, it seems reasonable to assume such a one as more prone to suffer from chronic sequelæ after acute attack. The causes which appear to invariably incite into action or aggravate into severity this painful affection, are pretty well represented by the same list of inaccuracies in living and imprudent exposures which conduce to predisposition to, or actively excite, an acute inflammatory attack. Damp and cold, wind and draughts, getting wet, living or sleeping in damp houses or apartments, are influences which prove active causes for determining the disease to its worst phases. Unsuitable climates,

and ever varying atmospheric surroundings, are likely to specially effect those chronically rheumatic.

SYMPTOMATOLOGY.

If the chronic condition supervenes upon a well marked acute attack, there will probably be imperfect subsidence of the enlargement about one or more of the joints. There will remain some impairment of function at these sites, with intermittent, remittent, protracted, or persistent, tenderness or pain proportionate to the presence or absence of the already enumerated exciting influences, and the exhibition of mitigating remedies from time to time. During wet and cold weather, or especially when it is both cold and wet, the chronically affected joints are generally the most painful. There may be some swelling and local tenderness if the attack is severe. Passive motion will often elicit pseudo-crepitation. Some patients remain free during long intervals, but when an adequate, though perhaps undeterminable cause, induces a sub-inflammatory seizure, the symptoms will always be referred to one or more of the previously affected joints.

Attacks of this character may be associated with febrile symptoms and some constitutional disturbance. If the initial point of departure has not been well defined, the symptoms will for a time be referred to those of mere painful sensation about the joints, the structural changes coming on insidiously. In pro-

portion to the extent of this implication will be the nodosity around the joints and their functional impairment. From disuse and favoring the affected parts, there is often marked muscular atrophy which throws the articulations into special prominence.

COURSE AND TERMINATION.

This malady once well established runs a somewhat uneventful course. The worst cases are associated with ever increasing deformity and interference with the excursions of the joints, to the point of immobility. It is a condition considered as but little amenable to remedial measures, though the author hopes to somewhat modify this opinion. When a case is left to run an uninterrupted and unfavorable course, life becomes a burden, and though the disease is never fatal, the condition, by depriving the patient of rest, and inhibiting ordinary avocations and pleasures, embitters, and probably shortens life.

PATHOLOGY.

The appearances of the rheumatic joint in a chronic case, do not always, on post-mortem inspection, coincide in extent with the degree of disturbance experienced during life. The changes in a typical case are such as mark chronic inflammatory irritation. Thickening and cloudiness of the synovial membrane, with hypertrophy and increased vascularity of the villous processes, exist with a flabby, relaxed,

frayed condition of the cartilage, and possibly fatty changes. In the more pronounced types, the fascia, the aponeurotic sheaths of the muscles, the fibrous envelopes of the nerves, and the periosteum, will be found undergoing changes. The fluid in and about the joint is usually thick, turbid, and contains broken down tissue and oil globules. The erosions of the articular cartilages, and the slow changes in the bone, with the inflammatory adhesions generally, will be found to have so limited motion in the joints as to have produced a condition practically analogous to complete anchylosis.

DIAGNOSIS.

The clinical history of the case pointing usually to a previous acute attack, and the fact that the patient is peculiarly susceptible to any variations of atmosphere and temperature, will generally serve to establish a diagnosis. Arthritis deformans can be excluded by reference to the above points, and by the absence of a very characteristic deformity, common to the latter, and by a certain limitation as to number, and want of symmetrical selection, of the joints involved in chronic rheumatism. Care must be taken to exclude also traumatic and tuberculous joint troubles, and the articular neuroses. This can be certainly done by noting the disproportion between the subjective and objective symptoms, and the probable existence of anæsthesia or hyperæsthesia within the affected area in the neurotic or neuritic cases.

CHAPTER IV.

TREATMENT OF CHRONIC RHEUMATISM.

If the physician of to-day could command the routine of a scientifically prescribed course of treatment in the cases of chronic rheumatism which come from time to time under his observation, it is probable that many results would be attained far more brilliant and satisfactory than ordinarily achieved. Still, a well marked case is at best difficult of management, and the local changes often such as are impossible of restitution. Nevertheless, much may be, and is done. Paramount as a factor essential to the ultimate success of treatment, is the entire submission of the patient to certain restrictions in the matter of diet. It is here that the physician is likely to come athwart his greatest difficulty. Prejudices, perhaps of his own, or on the part of the patient and friends, will be likely to prove serious obstacles. If the theory be accepted that to the presence in excess of uric acid from sub-oxidation of nitrogenous food-stuffs and mal-assimilation is due the train of symptoms constituting rheumatism, then it should need little argument to establish the axiom that abstention, so far as possible, from a highly nitrogenous diet, is desirable as the first step in the direction of minimizing a tendency to failure in oxidation to the point of urea formation. This means that meat should be abstained

from absolutely by the patient who earnestly intends to get the best possible results out of systematized treatment in a case of chronic rheumatism. It is perhaps not too much to assert that permanent benefit can never be assured by the physician, or hoped for by the patient, until this point is yielded. Beef, the richest of all in nitrogenous constituents; mutton, and pork, cannot be allowed. Too much meat is eaten by the people of this country. It certainly is not necessary to bone and sinew. The brawny Highlander eats Scotch oatmeal, and reads about meat. The nervous, dyspeptic American, who eats meat three times a day, is seldom able to write himself down a perfectly well man. Exaggerating this unnecessary use of nitrogenous food, is the pernicious method known as the Salisbury diet, under which the patients are directed to eat as much meat as they possibly can. The result is, that oxidation of the super-abundant food, if accomplished at all, is at the expense of the body tissues, and the effect of the overstimulation, imperfect oxidation and non-assimilation, is a general loss of muscle and failure in tone. Happily, the prohibition of the dark meats mentioned is not so terrible a privation after all; and if the too kind friends of the patient will withdraw their solicitude, and do their share in providing the many succulent and withal nourishing substitutes, the invalid's chances will be much improved. It is a common plaint of the patients, otherwise willing to follow

rules, that they find abstention from meat difficult and well nigh impossible when visiting or dining out. The diet of a patient chronically rheumatic, but with fair general health, need not be restricted save in the matter of meats, saccharine foods, and alcoholic stimulants. A farinacious diet is not contra-indicated. If the digestion is in good order, a little well-cooked roasted or boiled veal may be occasionally allowed. Moderation in table indulgences should be rigidly enjoined. When the patient is amenable to suggestion, and in a position to carry out a course of treatment, it will be desirable to arrange the course upon the following lines:

- Medicinal
  - Constitutional.
    - Cholagogue.
    - Alkaline.
    - Analgesic.
    - Tonics.
    - Mineral waters.
  - Local.
    - Massage.
    - Liniments.
    - Electricity.

CHOLAGOGUES.

It is of the first importance that persistent attention be paid to the emunctories. Mild, but oft repeated stimulation to the liver must be insured; and this may be accomplished by the aid of any carefully chosen cathartic. Attention to this point should form the initial step in the treatment. It is not enough that the patient, in answer to the hackneyed query as to the state of the bowels, replies that they are all

right. The following combination is suggested as of value, and one which can be given for a long period.

℞ Euonymin.....
Leptandrin.....
Podophyllin.....
Ext. aloes soc.....
Pil. hydragyri.....
Ext. hyoscyamus..... ää gr. v.

M. Div. in pil. (argent.) No. X.

Sig. One to two pills every night, or every alternate night, as indicated.

Or the following purely vegetable pill may be employed with satisfaction:

℞ Euonymin..... gr. xx.
Fl. ext. cascara..... ..... ʒ v.

M. Div. in gelatin capsules No. X.

S. One capsule every night.

ALKALIES.

Careful examination should be made of the patient's urine. The existence of serious renal complications being excluded, such alkalies as are well borne by the stomach and serve to insure slightly alkaline, or at least neutral, reaction of the urine, should be exhibited throughout the whole course of treatment. It is to be borne in mind that the alkalinity of the blood is less than normal in chronically rheumatic subjects. Two grains of euonymin and one drachm of bi-carbonate of soda, given in a little water after every meal, will be efficient. In the event of any pronounced

acidity, the stronger alkaline mixture indicated for acute rheumatism, may be used for a time.

The salicylate of lithium, or the bromide of lithium, may be made full use of in the medicinal treatment of this affection. Given systematically for a long period, in conjunction with appropriate dietetic observances, they will oftentimes give the happiest results. The former of these lithium salts, in doses of five to eight grains three times a day, may be given indefinitely without the least disturbance of the digestive functions.

Salol, and the salicylate of soda, are of little value. They disagree with the stomach, and are of only transient effect.

ANALGESICS.

The policy of promptly administering some form of medication, both internal and local, for the relief of the pain, which is frequently severe, need not be enlarged upon. Morphine, except imperatively indicated, must be withheld. The writer would recommend antipyrin, say in five-grain doses. Phenacetin may be used with advantage to allay pain, and is perfectly harmless; ten grains, three times a day, will be found sufficient in almost every instance. Sulphonal, though it possesses but slight analgesic properties, may be given in twenty- to thirty-grain doses as an hypnotic. It is, perhaps, contraindicated in the presence of gastrectasis, gastric congestion, or

chronic gastritis, on account of its slow solubility, though this may be to a great extent overcome, and its absorption and effect hastened, by the addition of a little sugar-of-milk to the sulphonal, and a thorough trituration of the combined powder.

TONICS.

While it is not desirable to insist on more medicine than will meet the requirements, a good tonic will probably be advisable after activity of the liver is established, and the patient is fairly under control of the alkalies. Any tonic mixture or preparation may be chosen which seems specially suitable. An extremely useful pill, which may be taken for a length of time, is compounded as follows:

℞ Acidi arseniosum.....gr. i.
Strychnine sulph.....gr. i.
Ferri sulph..... ʒ i.
Quinia sulph..... ʒ ss.
Lactopeptin .... ʒ i.
M. Div. in capsules. No. xxx.
Sig.: One pill three times a day, before each meal.

MINERAL WATERS.

These may be partaken of freely, and may be made the substitutes for water, and other drinks, during treatment. Their name is legion. The author would suggest that the Londonderry lithia water be used, and that it be taken by the tumblerful, three times a day. If some water with slight aperient

property is desired, it may be well to use Rubinat, or Villacabras. A wine-glass or claret-glass full of either of these, which contain a generous percentage of sodium sulphate, taken in the morning, and followed in half an hour by a cup of hot tea or coffee, will be efficacious, and is advisable if a cathartic pill has been taken the preceding night.

LOCAL TREATMENT.

If any practical benefit is derivable from massage, and few who have seen it scientifically administered will deny its therapeutic rank, it will certainly be of utility in chronic rheumatism. Mechanotherapy may be advocated in this disease upon the assumption that its physiological effect is to increase the flow of blood to the parts manipulated, the induced activity of the circulation, removing accumulations of waste tissue and morbid deposits, the retention of which gives rise to pain and disturbance of function. Theoretically, massage about rheumatic joints in which deposits have occured, should cause reabsorption of such deposits and the separation of adhesions in sheathes of tendons, and in the joints, by grinding away the intra-arthritic and surrounding accretions.

There is really no therapeutic value to any one of the innumerable liniments and lotions by virtue of which they can effect restorative changes in a chronic rheumatically affected joint.

Some absorption of anodynes may take place and lessen pain by acting on the peripheral nerves, but if any real good comes by the use of such remedies, it is directly by reason of the associated friction in applying them. However, liniments will be demanded, and must be given, the physician taking care that they are applied with some approach to massage movements. Better still, if the case can be put into the hands of an experienced masseur for this part of the treatment.

A liniment of the following oils may be prescribed for use during manipulation:

℞ Ol. sesami..... ℥ viij.
Ol. succicini..... ℥ j.
Ol. thymi..... ..... ʒ ij.
Ol. carri..... ʒ ss.
Ol. rosæ..... ♏ j.
Alkanet..... q. s.

The following ointment has been found of considerable service in effecting the absorption of recent deposits in and around the joints:

℞ Iodinii.....
Potass Iodidi..... ää gr. xl.
Ungt. Aq. Rosæ... ..... ℥ i.

M. Ft. ungt.

S. To be rubbed into the skin over the enlarged joints every night.

The Swedish movements are also serviceable as promoting increase of muscular nutrition. When

wasting of the muscular structures exists, and there is a generally lowered functional vitality in the limbs from disease, electricity, both galvanic and faradic, may be advantageously employed. Any bungling attempt with the faradic current, such as shifting the electrode aimlessly over the arm or leg, and producing violent spasms, is worthless. The motor points should be studied, and a mild faradic current be brought to bear sufficiently often to give each set of muscles gentle exercise at every séance.

It is a question whether baths, vaunted though they have been, are of general utility in chronic rheumatism. Some cases, it is true, seem to magically respond to a course of bathing at one or the other of the various Springs, but it is a question whether the change of air and habit are not after all the more potent factors. Sulphur baths may be tried. If any form of bathing produces a loss of tone, it should be discontinued.

Flannels or merinos, to be worn next to the skin, should be insisted upon, and they should never be discontinued except perhaps during the hottest part of summer. Care should be taken to examine carefully into the hygienic *entourage* of the patient. When the course of treatment is well instituted, and the details to be observed are thoroughly understood by patient and friends, a change of air may be suggested. The necessity of steadfast adherence to the lines of the treatment for a period of many months, must be firmly insisted upon as a *sine qua non.*

Treatment, carried out intelligently upon the basis of the foregoing suggestions, will be found prophylactic of the occurrence of many of the complications to which rheumatic people seem specially prone, such for instance as follicular tonsilitis, bronchitis, and pharyngitis. The condition of imperfect assimilation, which is always present, frequently gives rise to various troublesome forms of eczema, psoriasis or other skin manifestations, these symptoms yielding gracefully to persistent and profound alkalinization.

CHAPTER V.

RHEUMATOID ARTHRITIS.

(*Arthritis Deformans.*)

DEFINITION.

A disease of obscure origin and insidious approach, characterized by progressive changes in the structural components of the joints, with resultant permanent deformity.

CAUSATION.

Here it is better to admit that the acumen of the scientific medical investigator is at fault. Perhaps this frankness would be both graceful and accurate in respect to the whole series of joint affections, yclept rheumatic and gouty, but it is excusable, and perhaps in the direct line of progress, to resort to hypotheses for temporarily bridging the chasm between ignorance and truth. But this same rheumatoid arthritis has come in for more than its share of conflicting surmises and ambiguous pseudonyms. The influences which are stated as calculated to produce the disease in its incipiency, are so numerous as to demonstrate pretty conclusively that they cannot all be correct. It is said to be essentially a disease of the poorer classes, but this may be urged of most diseases which do not date their origin from excesses in which the poor can-

not indulge. Childhood and youth are tolerably exempt from it, the tendency being the greatest after the thirtieth year. Women are the more frequently subject to it, and the period of the climacteric favors its development. Then again its occurrence is ascribed to such causes as traumatism, damp and cold, a tuberculous diathesis, frequent pregnancies, poverty and bad hygienic surroundings, moral influences, such as nervous depression from anxiety and grief, protracted lactation, poor living, and so on, *ad infinitum*; and very much *ad libitum*, may these antitheses be amplified. The more modern assumption that pathological processes within the central nervous system are responsible for the principal manifestation, has received much attention. Among the arguments urged in support of this theory is the fact of the disease frequently dating from a period of known and well accentuated nervous disturbance.

SYMPTOMATOLOGY.

It seems pretty sharply defined that in an individual in whom the predisposition exists to take on this disease of the joints, it only requires some injury or prolonged irritation directed to any particnlar joint to insure the appearance of the characteristic changes in that site. Some swelling may be noticed, with more or less pain referred to regional nerve-tracks. Subsidence of symptoms will be followed by recurrence, and the involvement of other joints or groups

of joints; these will be seen to be slowly enlarging, and it will be noticed that a certain indefinable stiffness impedes their movements, and that this is especially so after retaining one position for a time, the joints requiring use to produce freedom of action. Some crepitation is present, due either to apposition of denuded bony surfaces in the joint, or from movement of tendons within partly ossified sheaths. Atrophy, more than commensurate with the enforced disuse of the muscles, is a marked feature; and this, with the gradual disappearance of the subcutaneous fat, gives to the affected limb a wasted look. The joints of the hand seem to be points of early selection. Distortion of the metacarpal extremities of the phalanges is caused by the formation of large nodules. These accretions or exostoses, and the contractions of the tendons, at length effect a series of luxations; the fingers are drawn into rigid flexion, lapping each over the other; characteristic deformities and anchyloses accompany corresponding changes in the articulations, and in the worst cases all ability to move is lost.

PATHOLOGY.

The joints in which the disease first manifests itself are said to be in a condition of *hydrops articuli*, and to contain in their cavities an excess of clear synovial fluid, while the walls of the joints are thickened, and the various flocculi are increased in size and number, and present a more or less congested ap-

pearance. Later on will be found quantities of new bone thrown out in nodular masses around the margin of the articulation, and occasionally osseous formations in the capsular ligaments. The processes which involve the cartilages are supposed to commence by some irritative proliferation of cartilage cells, producing a state of softness and overgrowth. This softening, it is thought, tends to a wasting of the portions which have to sustain pressure or attrition. The soft overgrowth bulges as an irregular rim around the joint, and there ossifies. This theory has been negatived in favor of another which favors the supposition that the new bone formation results from the continuous irritation to the periosteum, and that it is the direct outcome of chronic inflammation, simulating the exostoses of other bone diseases. The articular surfaces of the larger bones which have lost by erosion their cartilaginous coverings, become polished by impact and friction.

CHAPTER VI.

TREATMENT OF RHEUMATOID ARTHRITIS

TREATMENT.

It has been well said that treatment of this disease, to be of any value, should be begun early and must be active. By active treatment is to be understood the prompt direction of therapeutic agents to all the known or assumed failures in the economy of the patient which may be promoting disturbance of the general physiological equilibrium. When this is done, and done well, the constitution will be in the best possible condition to respond to the action of a specific remedy, if such exists. If the local changes are not already marked, careful treatment will certainly give brilliant results. If the structural deformities are pronounced, surgical interference may be of some benefit, while systematic treatment may arrest progress and ameliorate symptoms. After a certain point has been reached, the condition is permanent, and interference, with hope of restitution, futile. Before this desperate stage is arrived at, however, much can be done. Therefore it is wise to bring the patient's system at once within the action of such drugs as will assist the elimination of effete material, and inaugurate a dietary sufficiently non-nitrogenous to insure maximum oxidation.

Dark meats must be forbidden and so must

saccharine food and alcoholic beverages. Beyond this no restrictions are necessary if moderation in all things is exercised. To lay out a plan of diet is often to harass and confuse, and at once conflict with the possibilities of the patient's means and surroundings. But the broad principle of abstention from meat, sugars, and alcohol, covers the ground, leaving fish, fowl, eggs, farinacious food, vegetables and fruits, from which culinary ingenuity can elaborate an appetizing as well as nutritious diet in ample variety. Care should then be taken to exhibit suitable cholagogues and secure proper action of the liver. The author has found Metcalf's Liquor Pancreaticus, one to two teaspoonsful in water with each meal, effective in keeping the stomach in good condition. Catharsis may be determined by the use of the eunonymin pill at night, and alkalinization by the use of the soda and eunonymin powder after meals. Both these prescriptions may be found in the treatment of chronic rheumatism.

Without losing sight of the fact that dogmatic statements as to the specific value of any particular drug may weaken the position of him who makes it, the writer feels justified in urging the potency of arsenic in all cases of rheumatoid arthritis which are still amenable to treatment. In what way its curative agency is determined, is a bone over which all therapeutists still contend. Its action may be on the nutritive function by promotion of constructive metamorphoses, or it

may have a selective action on the central and trophic nervous systems. As with mercury in syphilis, so with arsenic in rheumatoid arthritis, we use them because they are found to have a certain therapeutic efficacy, and can only generalize and theorize as to the why and wherefore until such time as therapy and physiology are more exact sciences. Arsenic seems to exert some special action on the joints; there is much restoration of function, pain is lessened, and there is a gradual diminution of the swelling, while the progress of the disease is arrested. Therefore the writer would urge its use. The literature of therapeutic investigation is rich in facts and theories as to the action of the drug. It seems pretty clear that it must be the special care of the physician prescribing it to note the effects of its exhibition in every new case, and throughout its routine use. There appear to be the most diametrically opposed views as to the method of commencing a course of arsenical medication. Authors of universal reputation as leaders in therapeutical investigations, and the recognized formulators of rules for the guidance of lesser lights, differing widely. One dictates that the drug should be commenced in large doses, that the quantity should be regularly reduced, and that thereby liability to arsenical poisoning is avoided. Another states that by the use of frequent small doses, the irritating symptoms may be escaped, and the constitutional effect of arsenic obtained. Yet, again it is laid down, that it is a great

error to order it in gradually increasing doses. There is no doubt that these deductions were honestly made after careful experiments, but when the various opinions are fused, the resultant is an intangibility. This may be emphasized, that arsenic is a drug which is likely to make evident its presence in the system by certain well known manifestations, as irritation and congestion of the conjunctivæ, puffiness of the eyelids, gastro-intestinal trouble, and so on. That when it does so, it is imperative to so adjust the dosage that these symptoms are abated, or to temporarily discontinue the drug. That in view of idiosyncracies existing, it is well to commence with what is recognized as a medium dose. If Fowler's solution is used, then five drops, for an adult, three times a day, is usually borne without trouble, and will, as rule, soon result in some slight indications of physiological disturbance.

After a time the system becomes accustomed to its use, and the dose may be increased, by half-drops, until decided symptoms of arsenical poisoning appear, when the further increase is stopped, and the same dose maintained for some time, say several weeks or months; then the dose may be diminished, or the use of the drug temporarily suspended.

This latter method, though the simpler, is probably not the most scientific. Arsenic is so rapidly eliminated from the system, that to abandon its use for a fortnight is simply to give the arthritis a chance to increase, and when the drug is again taken up, the

process of surcharging the system and regaining lost ground must be gone through. By carefully watching the indications, and by the timely use of laxatives, the dosage may be easily adjusted so that this invaluable drug may be utilized indefinitely and with decided benefit, unless there co-exists any acute inflammatory or other condition contra-indicating its use. If arsenious acid is preferred, the dose is one-thirtieth to one-tenth of a grain, subject to the modifications and precautions already set forth. This may be given in tablet form, well triturated with sugar-of-milk, and taken after meals. Commence with the smaller dose, and gradually work up to the largest daily amount which the patient can continue taking without positive discomfort from the characteristic action of the remedy.

Careful study of the effects of the drug in each case, will enable its administration to be so graded that a tolerance can be established, a point to be much desired, in order to get from its employment the maximum benefit. When it is remembered to what enormous doses the arsenicophagi become habituated, failure in its medicinal administration argues the want of ability to employ it scientifically.

As general debility is frequently a concomitant of rheumatoid arthritis, it is well to use some form of tonic mixture, or pill, as soon as the emunctories are in working order. The mineral waters may be freely used. There is a water which seems of value and

specially applicable, known as the Plummer Bromine Arsenic water. It may be taken as a table drink to the extent of a quart a day.

Pain may be combated with any of the modern analgesics except morphine, which must be only used when the suffering is unsupportable. Antipyrin and phenacetin will often be found efficient, the latter for its hypnotic effect only.

Local applications in the shape of lotions and liniments are of no value, except negatively through the use of the manipulations and passive motion incidental to their employment.

Electricity, in any of its forms, may be considered worthless in this disease.

Iodine ointment, such as advised under the treatment of chronic articular rheumatism, is of considerable value, especially in the more recent cases.

The use of medicated baths, in this disease, is probably valueless, although there are some who believe still in the efficacy of the sulphur bath.

General massage, and the systematic movements of all the joints, as by the Swedish method, are among the most valuable adjuncts to the systematic treatment, and should be faithfully pursued over an extended period, from two to six times a week, and used for half an hour or an hour at each application.

CHAPTER VII.

GOUT.

DEFINITION.

A constitutional disease manifesting itself at intervals by paroxysms of intense pain at the sites of the lesser joints, to which are determined deposits of urates. The classical point of selection is usually the first metatarso-phalangeal articulation in one or both feet.

CAUSATION.

The exact molecular changes determining an acute attack of gout, like many other apparent failures on the part of the economy to project its chemical reactions to the point of physiological perperfection, are still within the debatable domain of the medical theorist. But the less scientifically defined influences which conduce to those disturbances, prone to culminate by a seizure, in a person assumed for the sake of argument as free from all hereditary gouty taint, are more readily definable. The early acquisition of wealth renders its application to personal luxury only too probable, and if this take the form of indulgence in eating and drinking, there will be slowly but surely established at least a predisposition to gout, for it is essentially a diner's disease.

It has been truly urged that lack of exercise with indulgence in the pleasures of the table promote

the dyscrasia, but it is also true that the English fox-hunting squire who passed his existence for the most part in the open air, but who also persisted in drinking a couple of bottles of port wine with a prodigious dinner, became at length the monumental exponent of the agonies of typical gout.

It has been well termed the spectre and scourge of the rich and sensual. The theory has been advanced that deficient oxidation acts as a cause. This is doubtless true in part. It must be, however, remembered that the wealthy are the gouty, and that this class, indolent though it may be, can and does avail itself of far more oxygen than the inhabitants of over-crowded dwellings and workrooms. If the sub-oxidation theory is tenable, then the failure may be presumed to arise from the constant surcharging of the system, by those who are over-indulgent, with such highly nitrogenized material, plus alcohol, as, by its quantity and quality, renders a normal supply of oxygen inadequate to perfect physiological adaptation or elimination.

The etiology has been humorously emphasized by a classic adage, the pith of which is expressed in the doggerel couplet:

> **" Vinum der Vater, Coena die Mutter,**
> **Venus die Hebamm' machen das Podagram."**

It is doubtful whether the last named lady is fairly entitled to any blame for this disease, and she is already sufficiently overwhelmed by reproach.

If the tendency to an acute attack is well established, the exciting causes determining a paroxysm are quite numerous. Any special gormandizing, excessive potations, fits of anger or grief, changes in the weather, mental strain, or a dyspeptic attack, are ripe exciting causes. It is thought that the immediate result is brought about by failure in the excretive power of the kidneys. If to the category of known originating causes directly within individual control, there is added the universally admitted tendency to heredity, the sum of chances against escape is pretty well made up. Gout is a disease which once established in a well-to-do family, "sticketh closer than a brother." It is very prevalent in England where wealth, and the possibility of self-indulgence, with indolence, obtain more than in any other country. In the United States its appearance keeps pace in frequency with the ability and inclination on the part of the wealthy to abandon the game of gain, and emulate the habits of the trans-Atlantic gouty. It goes without saying that men are more liable to gout than women. When the disease is inherited it sometimes shows itself in the young. Properly cultivated it may appear any time after the thirtieth year.

It has been both demonstrated and denied that workers in lead are prone to the development of typical gout. The theory is as much shrouded by uncertainty as ever, and it will probably be found that the few lead workers who are attacked with gout are

those in whom the dyscrasia is established by careless living and more or less pronounced alcoholism, accentuated by the well known deleterious systematic influence of the lead.

SYMPTOMATOLOGY.

If to the inherited dyscrasia, or the induced pre disposition, there is added an exciting cause, the result will be an acute attack of typical gout. The prodromata are vague, and until after repeated seizures cannot be well defined by the patient. He is generally to some extent out of sorts, irritable, low spirited, sleepless, nervous, and constipated; there may be some mental hebetude, a feeling of weariness in the limbs, febrile or chilly sensations, and perhaps a premonitory twinge or two referred to the base of the great toe. All these introductory warnings may be absent, and exhilaration be experienced, at least it is so laid down in the books. The paroxysm generally commences at what is supposed to be the period of minimum vitality, soon after midnight, or during the earlier hours of the morning. An intense pain commences in the ball of the great toe, which is burning, crushing, boring, or grinding in character, and apparently as unbearable as it is indescribable. Handling or motion of the affected part adds to the suffering. There is great thirst, the thermometer indicates more or less pyrexia, and the pulse is full and bounding. The skin around the toe joint becomes tense

from rapid swelling of the parts beneath, and is hot, red, and glazed, with marked venous distension. In a few hours there is a gradual subsidence of the violent symptoms, and probably sweating, followed by a sense of general relief, and sleep.

This history is likely to repeat itself nightly for a period of three days to a week or more, the joint remaining painful to the touch, and the toe, or possibly the foot and leg, being more or less swollen and œdematous for some time longer. As the painful symptoms abate and the swelling subsides, there is desquamation of the skin around the previously inflamed area, that replacing it being of normal appearance. This stiffness gradually wears away, and the joint regains its utility, but not its physiological integrity. There is some constitutional disturbance during the attack, generally indicated by loss of appetite, constipation, coated tongue, and high-colored and scanty urine, which deposits large quantities of solid material on cooling. Urination causes more or less scalding.

The foregoing brief sketch of a case of typical podagra covers only part of a wide range of facts and fancies with which the literature of the subject abounds. Much of this bears testimony to the careful consideration and accurate observation which have been given to the disease. There has, however, crept in much that bewilders; we have many gouty diseases which are not gout, and much gout appearing in the form of other diseases; and the terms

regular, typical, normal, acute, true, irregular, anomalous, latent, chronic, atonic, internal, misplaced, typical, and suppressed, gout, give ample opportunity for disguising uncertainty in opinion by pseudo-scientific ambiguity.

When an acute gouty inflammation, say of the toe, suddenly aborts, and the process or an allied complication simultaneously manifests itself in the abdominal viscera, kidneys, heart or head, the patient, though perhaps at first in no imminently critical condition, has unquestionably entered upon a more serious phase of the disease from prognostic standpoint. The theory so long maintained that actual metastasis of the acute process takes place, has been abandoned, or is at least strenuously opposed, and the terms retrocedent and suppressed gout are dropped from the redundant nomenclature of the disease. The physician who has to deal with a chronically gouty patient is, however, likely in the course of the acute seizures, to meet with the manifestations indicated. The stomach may become the seat of various disturbances of the nature of acute gastritis or gastralgia. Upon subsidence of such an attack there is likely to supervene a train of dyspeptic symptoms of the most aggravated character. If the heart be attacked there will be symptoms referred to marked circulatory disturbances, and difficulty of breathing, with a sense of præcordial oppression. The gravity of these phases, or complications, depends upon their intensity and the

extent of the pathological deterioration to which the patient's tissues have already been subjected.

COURSE AND TERMINATION.

It is more than likely that when the general health is restored after a first attack, the habit which induced the condition making its occurrence possible will be assiduously resumed. If this is done, a second seizure will probably come on within a year, and so the changes will be rung upon over-indulgence and gout. The intervals between the gouty seizures grow small by degrees and painfully less, and each attack leaves its local and constitutional impress, and in the aggregate determines a condition known as chronic gout, in which there are constantly present some manifestations of the disease and its induced sequelæ. The paroxysms, instead of being annual or biennial, are eventually of greater frequency and of less intensity but longer duration. Instead of subsidence of the associated swelling, there remains a lumpiness about the joints affected, these nodular resultants of the accretions at the joints being known as tophi. These deposits also occur in the helices of the ears and at other cartilaginous sites. The joints become generally disorganized, and there may be much consequent deformity and impairment of motion. As the disease progresses, the gouty cachexia is established, the constitutional symptoms attain prominence, and embrace every possible functional derangement of important

organs and viscera. If it is admitted, on the one hand, that gout does not directly cause death, it cannot be denied that such issue is hastened by the aggressive and progressive influences of inherited or induced diathesis and associated sequelæ.

PATHOLOGY.

So far as can be ascertained, the primary pathological change is the presence in the blood, transuded and exuded fluids, cartilages, periosteum, synovial fringes, and fibrous structures of the joints, of uric acid in excess, chiefly in the form of urate of soda. If a joint is examined which has been subjected to an acute attack of gout, its articular surfaces will be found covered with an apparently amorphous substance, which, upon microscopical inspection, is found to be composed of radiating acicular crystals of urate of soda. This incrustation, when increased by continuous deposit, becomes a factor in producing degenerative changes, erosions, and destruction of the articular structures. The source of irritation producing the above changes will determine inflammatory processes, which become chronic, in blood vessels and organs. The kidney is especially affected by these deposits of urates within its tubules, parenchyma, and pelvis.

CHAPTER VIII.

TREATMENT OF GOUT.

Gout, in its kaleideoscopic manifestations, presents a most interesting field of action to the therapeutist. Probably there is no pronounced disease which would yield more gracefully to the practice of medicine than gout, but for one generally insuperable obstacle, yclept, the patient. Covering the ground as a general proposition, it has been already laid down that gout, except that form induced by lead or hereditary predisposition, is essentially an outcome of dietetic excesses. The habits of self-indulgence, which have become ingrained, will tend to render nugatory, to a great extent, the effects of valuable advice, and therapeutical endeavor. *Venter non habet aures*, therefore too much must not be expected. Formulate a course of treatment for gout which, while prompt and efficacious will not interfere with the habits of a class led solely by its desires, then

"*Semper honor, nomenque tuum, laudesque manebunt.*"
—VIRGIL.

"Thy honor, thy renown, and thy praises shall be everlasting."

The intensity of the suffering in an attack of acute gout, usually podagra, is such as renders imperative the demand of the patient for prompt relief, and the physician does well to remember that he is

reckoned the wisest to whom that which is required at once suggests itself.

The following may be ordered as a topical application:

℞ Ol. gaultheria.....
Ol. olivæ.....
Linimentum saponis.....
Tinct. aconiti.....
Tinct. opii.....ää 3 ij.

M. ft. linimentum et sig. Apply as directed.

This can be applied freely by the gentlest friction to the inflamed site, the foot and leg being then protected by a generous covering of cotton batting, or oakum, secured by a light bandage. The limb may then be supported upon an inclined plane, the foot being the higher point. If the pain be endurable without the immediate call for analgesics, a carthetic should be given. The combination of euonymin, leptandrin, podophyllin, and blue mass, in pill form as suggested in the treatment of chronic rheumatism will be found effectual. One or two of these pills may be administered. Alkaline treatment should be at once pushed. Bicarbonate of soda may be given in doses of one or two drachms to the tumblerful of water every four hours, for twelve or sixteen hours. It is difficult to lay down any hard and fast line in the matter of the treatment of the pain. If it be bearable at all, then the use of antipyrin will be of value in five grain doses every two

hours. This remedy, if found to be exerting its decided analgesic properties after the second dose, may be persisted in with the special advantage that it does not preclude the early use and action of a cathartic. If, however, the pain is excruciating, as it often is, the treatment indicated is that which would be followed in any instance of acute suffering. Morphine with atropia, say morphia, gr. $\frac{1}{8}$, atropia gr. $\frac{1}{140}$, administered hypodermically near the inflammatory site, and repeated every half hour until the subsidence of pain to the point of endurance, will be all that is required.

Acute attacks, referable to the gouty condition, which may manifest themselves in the internal organs, must be dealt with according to the exigencies of the cases and as indicated by the symptoms. If the heart becomes directly involved, that treatment and mode of life which determines the most perfect depuration by the emunctories and insures to the organ itself blood of the best quality, will be most efficient means of preventing an early untoward issue.

Here it may be well to enter a protest against the administration of colchicum in any of its forms, and the author, in the light of his experience, has no apology to make for discarding the use of this drug which custom, rather than individual discretion, has made the sheet anchor of treatment hitherto. Its effects are transient, it interferes with the digestion and circulation, induces muscular feebleness, and acts as an insidious general depressant. Patients soon

learn to use it themselves, flying to it while persisting in the errors of living which render it necessary to their relief. The writer has no hesitation in stating a conclusion evolved from observation that many of the sudden deaths, among the wealthier classes, of men between fifty and sixty, ascribed to that vague causation, heart failure, are due to the improper use of colchicum. Indeed, it would perhaps often throw some clinical light, as guide to the physician in arriving at the causation in a case of heart failure, if he would inquire whether his patient, especially if known to have been a generous liver, has not been in the habit of administering to himself, or taking by medical or friendly advice, doses of colchicum or colchicine. The use of any remedy which has for its aim the suppression of pain in gout, or indeed any disease, should never be so vaunted by the physician as to be popularized. Patients in this way get into the habit of dosing themselves without the slightest discrimination, and usually in such increasing quantities that the toxic elements of the drug insidiously make their mark upon the constitution, tending, as in the case of colchicum, to a fatal termination.

Education of the masses is a very beautiful philanthropic theory, and its practice an immense stride in the direction of an apochryphal millenium; but when it makes every man assume that he is living on the fruit of the Tree of Knowledge or has touched the hem of the garment of the Omniscient, it is apt

to prove a clog to the wheels of true progress. The auto-therapeutist of to-day is the *bête noir* of the conscientious clinician.

The diet during at acute gouty seizure must be limited to the most readily assimilated ingesta, chicken and mutton broths, minus the fat, beef tea, vegetable soups, and light puddings, being all that is required.

Following the subsidence of an acute attack of gout, bitter tonics should be given for two or three weeks.

The condition of chronic gout will need careful and prolonged treatment, and, assumiug the self-abnegation of the patient as posssble, and placing it as the *sine qua non* of success, it may be said to depend upon an observance of scientific dietetic rules, and alkalinization. Care should be taken to avoid abruptness in change of diet, but gradually there should be brought about such a form of dietary as will exclude the nitrogenous, saccharine, and acid elements. With this principle ever to the fore, it is better to avoid any further dogmatic itemization, and thus lessen, as far as possible, the sense of restriction on the part of the patient. It is well, perhaps, to give a comprehensive list of the classes of food and drink which should be abstained from, and tell the patient he may take anything else in moderation outside of this. While the stronger alcoholic drinks must be forbidden, the lighter white wines taken with

carbonated water may perhaps be allowed with impunity, and will often be appreciated by the patient as a very important condescension to his appetite.

Alkalinization may be effected by the persistent use of any preparation which is found to be well borne by the stomach. For instance, equal parts of liq. potassæ and infusion of buchu may be given in two-teaspoonful doses three times a day, after meals, in a tumbler of water, or Vichy water, or any of the alkaline preparations previously indicated for rheumatism may be used. The alkaline baths have been found of service, and when the means of the patient will justify the expedient, or a change of air is desired, those of Carlsbad and other celebrated resorts may be tried, though this is not essential in the treatment of gout, and will only be of use in conjunction with the observance of a prescribed regimen and constitutional treatment. A really valuable alkaline bath may be improvised at home by the addition of, say, half a pound of bicarbonate of soda to the ordinary bath at 90° F.

It is a question whether massage is of marked utility, but it may be practiced where there is much joint stiffness, and will be more efficacious if performed upon the patient while in the alkaline bath.

The general drinks should be carbonated or lithia waters. Analyses of many of the various kinds are appended to this treatise, from which the physician may choose snch as are, in his opinion, most indicated. The Londonderry water is, perhaps, especially useful from its richness in lithium.

ANALYSES OF VARIOUS MINERAL WATERS, THE USE OF WHICH IS ESPECIALLY INDICATED IN THE TREATMENT OF RHEUMATISM AND GOUT.

FOREIGN MINERAL WATERS—VICHY.

GRANDE GRILLE.	Grains per Gallon.	Grammes per Gallon.	Grammes per Litre.
Carbonate of Lime.....	12.28	0.8345	0.22050
Carbonate of Magnesia..	2.40	0.1555	0.04108
Carbonate of Iron.....	0.64	0.0415	0.01095
Carboate of Soda.....	276.88	17.9413	4.73940
Sulphate of Soda.....	44.56	2.8873	0.76260
Chloride of Soda.....	25.20	1.6329	0.43136
Total.....	362.56	23.4930	6.20589
HOPITAL.			
Carbonate of Lime.....	19.60	1.2702	0.33556
Carbonate of Magnesia..	2.16	0.1399	0.03697
Carbonate of Iron.....	2.88	0.1866	0.04930
Carbonate of Soda.....	268.16	17.3813	4.59140
Sulphate of Soda	50.16	3.2506	0.85867
Chloride of Soda.....	8.80	0.5702	0 15066
Total.....	351.76	22.7988	6.02256

THE RUBINAT LLORACH WATER.

	Grains per Gallon.	Grammes per Gallon.	Grammes per Litre.
Sulphate of Sodium.....	5622.84	364.3542	96.265
Sulphate of Potassium..	13.96	0.9046	0.239
Sulphate of Magnesium.	190.89	12.3694	3.268
Sulphate of Calcium....	113.84	7.3771	1.949
Chloride of Sodium	120.04	7.7784	2.055
Silica, Alumina and Ferric Oxide.....	2.22	0.1438	0.038
Total.	6063.79	392.9275	103.814

THE VILLACABRAS WATER.

	Grains per Gallon.	Grammes per Gallon.	Grammes per Litre.
Sodium Sulphate.....7129.22		461.977	122.0500
Magnesium Sulphate....	57.52	3.727	0.9847
Calcium Sulphate.....	117.12	7.589	2.0005
Sodium Chloride.....	52.86	3.425	0.9050
Silica, Alumnia and Iron,	6.89	0.447	0.1180
Total.....	7363.61	477.165	126.0582

CARLSBAD MINERAL WATER.

	Grains per Gallon.	Grammes per Gallon.	Grammes per Litre.
Carbonate of Iron..	0.1752	0.0114	0.0030
Carbonate of Maganese....	0.0117	0.0007	0.0002
Carbonate of Magnesium,	9.2750	0.6302	0.1665
Carbonate of Calcium.....	18.7700	1.2165	0.3214
Carbonate of Strontium...	0.0235	0.0015	0.0004
Carbonate of Lithium.....	0.7185	0.0465	0.0123
Carbonate of Sodium.....	75.8200	4.9141	1.2980
Sulphate of Potassium....	10.8750	0 7049	0.1862
Sulphate of Sodium.....140.4810		9.1040	2 4053
Chloride of Sodium.....	60.8550	3.9440	1.0418
Fluoride of Sodium.....	0.2922	0.0189	0.0051
Borate of Sodium.....	0 2921	0.0189	0.0050
Phosphate of Calcium.....	0.0411	0.0026	0.0007
Oxide of Aluminum.....	0.0235	0.0015	0.0004
Silicic Acid.....	4.1760	0.2706	0.0715
Carbonic Acid (partly comb.)	45.3300	2.9374	0.7761
Carbonic Acid, free.....	11.0880	0.7184	0.1898
Caesium, Rubidium, Thallium, Zinc, Arsenic, Antimony, Selenium, Formic Acid, Undeterminable Organic Matter.....	Traces.	Traces.	Traces.
Total.....378.6978		24.5421	6.4837

AMERICAN MINERAL WATERS.

PLUMMER. BROMINE ARSENIC WATER.

FROM ASHE COUNTY, N. C.

	Grains per Gal'on.	Grammes per Gallon.	Grammes per Litre.
Sodium Carbonate	1.50553	0.09756	0.02577
Calcium Carbonate	1.18968	0.07709	0.02037
Magnesium Carbonate	0.63508	0.04115	0.01087
Lithium Carbonate	0.02152	0.00139	0.00037
Copper and Lead Carbonate	Trace	Trace	Trace
Zinc Carbonate	Trace	Trace	Trace
Calcium Fluoride	Trace	Trace	Trace
Potassium Sulphate	0.65199	0.04225	0.01116
Potassium Chloride	0.13646	0.00884	0.00234
Sodium Chloride	0.52136	0.03378	0.00893
Sodium Arseniate	0.00758	0 00049	0.00013
Sodium Bromide	0.03668	0.00237	0.00063
Sodium Iodide	0.00944	0.00061	0.00016
Ferrous Sulphate	0.09732	0 00631	0.00166
Sodium Borate	Trace	Trace	Trace
Aluminium Phosphate	0.03720	0.00242	0.00064
Silica	1.88950	0.12244	0.03234
Organic Matter	Trace	Trace	Trace
Total	6.73934	0.43670	0.11537

LONDONDERRY MINERAL WATER.

NASHUA, NEW HAMPSHIRE.

Equal parts of East and West Springs mixed.

	Grains per Gallon.	Grammes per Gallon.	Grammes per Litre.
Calcium Sulphate	12.5596	0.8138	0.2150
Potassium Carbonate	9.1642	0.5938	0.1569
Calcium Bicarbonate	8,1249	0 5253	0.1387
Magnesium Carbonate	7.6271	9.4943	0.1306
Aluminic Sulphate	5.1726	0.3353	0.0885
Iron Carbonate	1.8607	0.1206	0.0319
Potassic Sulphate	0.1541	0.0101	0.0027
Sodium Chloride	0.4290	0.0278	0.0077
Silicia	0.6248	0.0409	0.0107
Lithium Bicarbonate	7.1772	0.4651	0.1229
Total	52.8942	3.4269	0.9056

INDEX.

Eligible Remedies for Rheumatism.

Elixir Manaca and the Salicylates.

In its native country, Brazil, Manaca is regarded as a specific for the cure of rheumatic affections, and the results obtained by its extensive trial in this country have confirmed the opinions of the Brazilian profession.

The value of the Salicylates in rheumatism is too well known to need more than mention.

This elixir combines the virtues of Manaca with those of the Salicylates of Sodium, Potassium, and Lithium, and will be found a most reliable and convenient form for securing the anti-rheumatic effects of these agents.

Working Bulletin on Manaca mailed to Physicians on request. Samples supplied for investigation.

CASCARA SAGRADA IN RHEUMATISM

Reports of Cascara Sagrada, so long well known for its value in the treatment of chronic constipation, have shown its curative action in rheumatism. (See article entitled "Cascara Sagrada in Rheumatism," by T. H. Goodwin, M. D., surgeon U. S. Marine Hospital Service, *New York Medical Journal*, June 9, 1888). In thirty cases the most satisfactory results were obtained, and relief was afforded in most cases in twenty-four hours.

The facts already observed encourage its further employment, both alone and in combination with the Salicylates. The palatable preparations of Cascara Sagrada, as Cascara Cordial, make an excellent vehicle for the Salicylates, tending to prevent the distressing cerebral symptoms of the latter. (See article by R. S. Henry, M. D., *Philadelphia Medical and Surgical Reporter*, Oct. 23d, 1886), and a combination of these drugs will secure the remedial action of both.

A reprint of Dr. Goodwin's article on "Cascara Sagrada in Rheumatism," mailed physicians on request.

PARKE, DAVIS & CO.,

DETROIT AND NEW YORK.

IN EXPLANATION

OF

The Physicians' Leisure Library.

We have made a new departure in the publication of medical books. As you no doubt know, many of the large treatises published, which sell for four or five or more dollars, contain much irrelevant matter of no practical value to the physician, and their high price makes it often impossible for the average practitioner to purchase anything like a complete library.

Believing that short practical treatises, prepared by well known authors, containing the gist of what they had to say regarding the treatment of diseases commonly met with, and of which they had made a special study, sold at a small price, would be welcomed by the majority of the profession, we have arranged for the publication of such a series, calling it **The Physicians' Leisure Library.**

This series has met with the approval and appreciation of the medical profession, and we shall continue to issue in it books by eminent authors of this country and Europe, covering the best modern treatment of prevalent diseases.

The series will certainly afford practitioners and students an opportunity never before presented for obtaining a working library of books by the best authors at a price which places them within the reach of all. The books are amply illustrated, and issued in attractive form.

They may be had bound, either in durable paper covers at **25 Cts.** per copy, or in cloth at **50 Cts.** per copy. Complete series of 12 books in sets as announced, at **$2.50,** in paper, or cloth at **$5.00,** postage prepaid. See complete list.

PHYSICIANS' LEISURE LIBRARY

PRICE: PAPER, 25 CTS. PER COPY, $2.50 PER SET; CLOTH, 50 CTS. PER COPY, $5.00 PER SET.

SERIES I.

Inhalers, Inhalations and Inhalants.
By Beverley Robinson, M. D

The Use of Electricity in the Removal of Superfluous Hair and the Treatment of Various Facial Blemishes.
By Geo. Henry Fox, M. D.

New Medications, in 2 Vols.
By Dujardin-Beaumetz, M. D.

The Modern Treatment of Ear Diseases.
By Samuel Sexton, M. D.

The Modern Treatment of Eczema.
By Henry G. Piffard, M. D.

[redacted]tiseptic Midwifery.
By Henry J. Garrigues, M. D.

On the Determination of the Necessity for Wearing Glasses.
By D. B. St. John Roosa, M. D.

The Physiological, Pathological and Therapeutic Effects of Compressed Air.
By Andrew H. Smith, M. D.

Granular Lids and Contagious Ophthalmia.
By W. F. Mittendorf, M. D.

Practical Bacteriology.
By Thomas E. Satterthwaite, M D

Pregnancy, Parturition, the Puerpera State and their Complications.
By Paul F. Munde, M. D.

SERIES II.

The Diagnosis and Treatment of Haemorrhoids.
By Chas. B. Kelsey, M. D.

Diseases of the Heart, in 2 Vols.
By Dujardin-Beaumetz, M. D.
Translated by E. P. Hurd, M. D.

The Modern Treatment of Diarrhoea and Dysentery.
By A. B. Palmer, M. D.

Intestinal Diseases of Children, in 2 Vols.
By A. Jacobi, M. D.

The Modern Treatment of Headaches.
By Allan McLane Hamilton, M. D.

The Modern Treatment of Pleurisy and Pneumonia.
By G. M. Garland, M. D.

Diseases of the Male Urethra.
By Fessenden N. Otis, M. D.

The Disorders of Menstruation.
By Edward W. Jenks, M. D.

The Infectious Diseases. In 2 vols.
By Karl Liebermeister.
Translated by E. P. Hurd, M. D.

SERIES III.

Abdominal Surgery
By Hal C. Wyman, M. D.

Diseases of the Liver.
By Dujardin-Beaumetz, M.D.

Hysteria and Epilepsy.
By J. Leonard Corning, M. D.

Diseases of the Kidney.
By Dujardin-Beaumetz, M. D.

The Theory and Practice of the Ophthalmoscope.
By J. Herbert Claiborne, Jr., M. D.

Modern Treatment of Bright's Disease.
By Alfred L. Loomis, M. D.

Clinical Lectures on Certain Diseases of Nervous System.
By Prof. J. M. Charcot, M. D.

The Radical Cure of Hernia.
By Henry O. Marcy, A. M., M. D., L. L. D.

Spinal Irritation.
By William A Hammond, M. D.

Dyspepsia.
By Frank Woodbury, M. D.

The Treatment of the Morphia Habit.
By Erlenmeyer.

The Etiology, Diagnosis and Therapy of Tuberculosis.
By Prof. H. von Ziemssen.
Translated by D. J. Doherty, M. D.

SERIES IV.

Nervous Syphilis.
By H. C. Wood, M. D.

Education and Culture as correlated to the Health and Diseases of Women.
By A. J. C. Skene, M. D.

Diabetes.
By A. H. Smith, M. D.

A Treatise on Fractures.
By Armand Després, M. D.

Some Major and Minor Fallacies concerning Syphilis.
By E. L. Keyes, M. D.

Hypodermic Medication.
By Bourneville and Bricon.

Practical Points in the Management of Diseases of Children
By I. N. Love, M. D.

Neuralgia.
By E. P. Hurd, M. D.

Rheumatism and Gout.
By F. Le Roy Satterlee, M. D.

Electricity, its application in Medicine.
By Wellington Adams, M. D.

Taking Cold.
By F. H. Bosworth, M. D.

Auscultation and Percussion.
By Frederick C. Shattuck, M. D.

Series IV will be issued one a month, beginning with November, 1889.

GEORGE S. DAVIS, Publisher,

P. O. Box 470. Detroit, Mich.